

# Gimbal Integration to Small Format, Airborne, MWIR and LWIR Imaging Sensors, Phase I

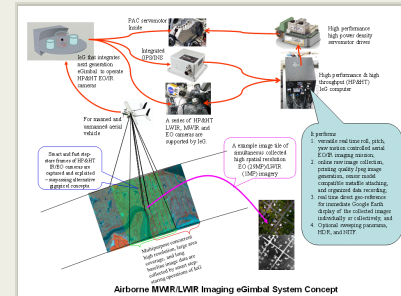
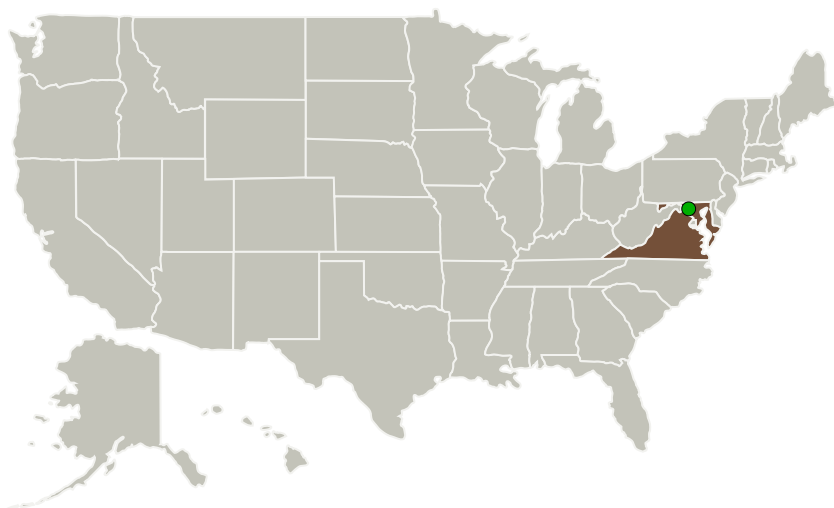
Completed Technology Project (2013 - 2013)



## Project Introduction

The proposed innovation is for enhanced sensor performance and high resolution imaging for Long Wave InfraRed (LWIR) and Medium Wave IR (MWIR) camera systems used in aerial imaging applications through integration with KeyW's advanced EO/IR Imaging eGimbal™ (IeG) system. Increases in pixel densities with the advent of large format monolithic focal plane arrays (FPAs), as well as new detector materials, has led to the development of faster frame rate cameras in these long-wave spectral bands. These next generation systems have enabled the transition of applications and operational CONOPs more traditionally used with high resolution Electro-Optical (EO) camera systems to long wave sensors. Specifically, the SBIR team of GIA and KeyW propose to 1) design an integration plan for a more robust version of IeG, three-axis gimbal system developed from a previous SBIR with NASA Goddard, to small format, high-sensitivity, MWIR/LWIR cameras, including the development of a sensor model to perform the coordinate transformations to geo-register the long-wave imagery; 2) design a geometric and radiometric calibration approach to ensure accurate projection and image quality of the MWIR/LWIR data; 3) design the command and control software to ensure accurate targeting of the proposed MWIR/LWIR sensors; and 4) study/design techniques and operational parameters that will allow the MWIR/LWIR sensors to meet the requirements of selected target applications and products.

## Primary U.S. Work Locations and Key Partners



## Gimbal Integration to Small Format, Airborne, MWIR and LWIR Imaging Sensors

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Organizations Performing Work	Role	Type	Location
Geospatial Intelligence and Analysis, Inc.	Lead Organization	Industry	Alexandria, Virginia
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

## Project Transitions



**May 2013:** Project Start

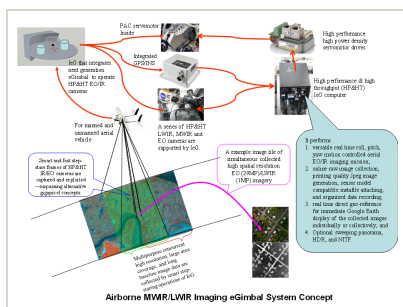


**November 2013:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138183>)

## Images



## Project Image

Gimbal Integration to Small Format, Airborne, MWIR and LWIR Imaging Sensors  
(<https://techport.nasa.gov/image/134660>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Geospatial Intelligence and Analysis, Inc.

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

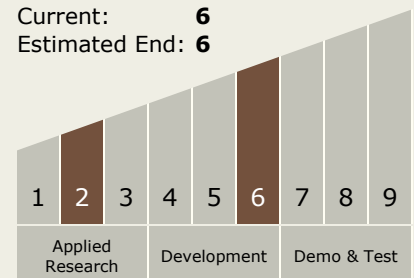
Carlos Torrez

### Principal Investigator:

Robert L Fischer

## Technology Maturity (TRL)

Start: 2  
Current: 6  
Estimated End: 6



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## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.1 Detectors and Focal Planes

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System